

Eskridge (J. T.)

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Perineuritis.

A Clinical Lecture delivered at the
Arapahoe County Hospital,
October 17, 1891.

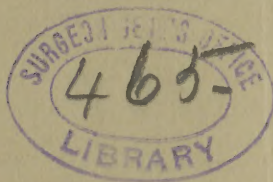
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AND DEACONESS HOME HOSPITALS.

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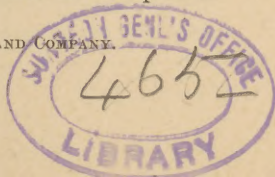
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GENTLEMEN: I wish to call your attention to-day to this case and compare it with the case of multiple neuritis which we studied two weeks ago. H. A. W., aged thirty, male, plasterer, Michigan, came to Colorado two years ago. His family history is unimportant. He always enjoyed good health up to the time of the beginning of the present illness. He has never been addicted to the use of alcohol and denies venereal trouble or sexual excesses. He has never received any injury to the head or spine. On or about the 14th of September, 1891, he began to feel languid and indisposed, but continued to work until the 19th, when he took to his bed. At that time he had pain in head and back of neck, and complained of dizziness, which he says made everything appear confused to him, especially in regard to sight and hearing. His temperature, when first taken after going to bed, was 103°. Shortly after this he had pain in



both shoulders, down his back and in hips and legs, and experienced numb sensations in each arm and hand. The pain appears to have been largely in the joints, and the sensory disturbances entirely of a subjective nature. Two days after taking to his bed he noticed the fingers of the right hand became paralyzed, and in a few hours paralysis had ascended the right arm, involving all the muscles and most of the shoulder muscles of that side. Only twelve hours elapsed from the beginning of the numbness in fingers to complete loss of power in that arm. The left arm was affected about the same time as the right, but only the parts above the elbow were much involved. He seems to have had fair strength in the left hand, but the muscles of the upper arm and shoulder of the left side have been paralyzed from the first. About two days after he noticed the first disturbances in the arms, pain having descended in the back to the lumbar region in the mean time, the right leg was affected with weakness and numb sensations, and a few hours later it was totally paralyzed. The left leg was weak, but he does not seem to have had complete paralysis in this limb at any time. He states that after his arms were first affected he was able to walk around the room for two days before his legs became paralyzed. The pain in the head and shoulders gradually subsided, but in the hips and legs it still remains. It seems to be dull and rheumatoid in character, but at times he says it is sharp and distressing. The bowels have been constipated from the first. The appetite was poor in the early part of the disease, but it is better now. He tells us that his legs have been covered with cold perspiration from time to time. He was admitted to the hospital October 10th, about three weeks after the beginning of the attack. Examination at that time revealed the following condition. Legs—right: With patient on his back the leg is held in a semiflexed position, and he is un-

able voluntarily to flex or extend it. Forced extension gives rise to pain on the inner side of the thigh about six inches above the knee, and on outer side of leg about four inches below the knee. The only comfortable position for the leg is the one described, while it is supported on either side by pillows. He can flex and extend the toes, but is unable dorsally to flex the foot. Plantar flexion of the foot can be fairly well effected. The muscles of the calf are greatly wasted and flabby, and the anterior tibial group is in a more advanced atrophic condition. The whole of the calf of the leg is sensitive to pressure, but this condition is more marked over the region of the nerves. The extensor thigh muscles still preserve some strength, but the flexors are entirely paralyzed. The abductors and adductors are exceedingly weak. The plantar reflex and knee-jerk are absent. Cremaster reflex is present. Left: There is considerable wasting of the muscles of the leg, but it can be voluntarily extended or flexed at pleasure. Dorsal and plantar flexion of the foot is good. There is tenderness over the calf muscles, especially in the region of the nerves. The thigh muscles act well, and he can voluntarily place the leg in any position he desires. Plantar, cremaster, and inguinal reflexes are present. Knee-jerk and epigastric reflex absent. Right hand and arm: All the fingers of this hand, with the exception of the index, assume the semiflexed position. The index finger remains extended. He can move the fingers of the right hand slightly, but is unable to completely close or open the hand. You observe the curious condition here, that when the middle, ring, and little fingers are moved in flexion or extension, the index finger remains motionless and the thumb is adducted slightly; but when these fingers are kept quiet and the thumb adducted and abducted, the index finger moves slightly. We have in this illustration the fact that the muscles may be paralyzed for

one movement, and not for another, in certain lesions of the central nervous system. Flexors and extensors of the wrist are nearly paralyzed. He can, by considerable effort, pronate and supinate the arm. The biceps and deltoid are entirely paralyzed, and the triceps is almost paralyzed but not completely so. The great pectoral muscle still retains some power, as do the other shoulder muscles. Left arm and hand: The hand can be flexed and extended with fair force and put in various positions. Dynamometer registers forty-four. Flexors and extensors of the wrist are fairly strong. Supination and pronation are effected easily and with power. None of the forearm muscles are paralyzed, but are slightly paretic. The biceps is almost entirely paralyzed, while the triceps retains more power. The deltoid muscle is completely paralyzed. The pectoral and other shoulder muscles are fairly strong for certain movements. There is tenderness over the arms in the region of the nerves and he complains of pain in the shoulder. The clavicular portion of the great pectoral muscle is sensitive to pressure. There is considerable muscular wasting, especially in the deltoid, and this is more marked than on the right side. Measurements: Calf—right, $11\frac{1}{8}$; left, $11\frac{1}{4}$. Thigh 10 inches above the knee—right, $15\frac{1}{2}$; left, $15\frac{1}{4}$. Forearm—right, $8\frac{7}{8}$; left, $9\frac{1}{4}$. Upper arm—right, 9; left, $8\frac{5}{8}$. Axillary region over lower portion of the deltoid—right, 10; left, $9\frac{1}{8}$. You notice when he is lying on his back he is unable to prevent the right leg, which is held in the semiflexed position, from falling from side to side; and if it is allowed to fall he complains of great pain in the upper and inner region of the thigh. You observe when I move the right leg it gives rise to no pain in the hip. The facial muscles are uninvolved. Tongue protrudes in median line. Left pupil is larger than right. Both react to light and accommodation, and in looking at a near object both pupils are nearly

equal in size. He complains of a numb feeling in the legs and pain in thigh, especially during the afternoon and evening. At other times he tells us he has no pain unless his legs are moved. Tactile, temperature, muscular, and pain senses are normal in every portion of the body and limbs. There is no affection of any of the special senses. There is no pain or feeling of constriction around the body. On examining the eyes with the ophthalmoscope, I find them normal. He has had entire control over the bladder and bowels from the earliest part of his sickness. There is some tenderness over the sacral and lumbar regions of the spine, but none over the dorsal. There is no deformity of the spine or evidence of bone trouble. In testing the muscles with the faradaic current it is found that those of the right leg, of the entire right arm and shoulder, and of the upper left arm and shoulder, respond less readily than in health.

To recapitulate, this man up to four weeks ago had enjoyed good health, when, without apparent cause, except probably being reduced in strength by overwork and worry, he began to feel ill and was unable to do his work without extreme effort. He continued to work, however, for four days after his bad feelings began, and then was compelled to take to his bed with pain in his head, back, and shoulders, and with a temperature of 103° . Twelve hours later his hands began to feel numb and paralyzed. Paralysis gradually extended up the arms, involving the entire right arm and the left upper arm. Two days later the pain had extended down the back, and the legs became affected, the right being completely paralyzed, the left only paretic. And now we find him with a peculiar distribution of the paralysis, with some subjective sensory disturbances, but with objective sensation complete in every respect. The subjective sensory disturbances consist of pain in the

shoulder and hip joints, and slight tenderness over the muscles and nerves of the limbs and back, with numb sensations in various portions of the extremities.

You will remember the patient who was suffering with multiple neuritis whose case we studied two weeks ago. We will compare his symptoms with those presented by the patient before us in order to exclude multiple neuritis as the cause for paralysis in the present instance. In the case of multiple neuritis we found not only subjective sensory disturbances, but those of an objective character. Portions of the leg and patches around the feet were completely anæsthetic. The sense of touch was not so greatly perverted in the hands. The greatest difference exists in the character of the paralysis of the two cases. In the case of multiple neuritis the muscles below the knees and below the elbows only were affected. There were foot-drop and wrist-drop. The muscles above the knees and above the elbows retained their power. Further, the paralysis was symmetrical. In the case before us, in one arm we have paralysis above the elbow, while the muscles below are fairly strong. In the other arm we find the muscles paralyzed throughout. Right leg is almost completely paralyzed, but the left leg is only paretic, and he is voluntarily able to move it in the direction desired. We see, then, that the paralysis has an irregular distribution and is asymmetrical. We do not have the typical wrist and foot-drop in this case that we found existing in multiple neuritis. The left foot and hand can be extended, the right hand partially, while the muscles that move the right foot are almost completely paralyzed. But even here, where the foot-drop exists on the right side, he is able to flex and extend the toes of the same foot. We have no difficulty, then, in excluding parenchymatous multiple neuritis of the ordinary form. From the bilateral character of the paraly-

sis, its mode of onset, etc., we can likewise exclude brain lesion in this case. Of the acute spinal lesions that may be followed by paralysis, we may mention meningitis, myelitis, acute ascending paralysis, and poliomyelitis (cornual myelitis). In spinal meningitis of an acute character the suffering is great; there is twitching of the muscles, spastic condition of the muscles of the back, and great pain on bending the back or moving the muscles supplied by the nerves that pass through the inflamed portion of the membranes. Paralysis is not marked at first, and the muscular wasting is never an early and prominent symptom, and if the lesion extends sufficiently high to involve the arms, as in this case, there is retraction of the head, owing to the spastic condition of the post-cervical muscles. It is not difficult, then, to exclude meningitis in the present instance.

In myelitis, be it diffuse, transverse, focal, or disseminated, there are always objective sensory disturbances. In the absence of these we can exclude myelitis. In that rare and curious disease known as acute ascending paralysis the disease begins in the lower portion of the cord, causing paralysis of the lower portion of the legs first, and this paralysis gradually extends upward, involving the parts below before the parts above are affected; so that we have the legs paralyzed before the muscles of the trunk, the muscles of the trunk before the arms, and so on. Besides, there is no marked trophic disturbance, such as great muscular wasting. The case before us presents marked muscular atrophy. This, with the peculiar distribution of the paralysis, would enable us to exclude acute ascending paralysis.

We have left, then, poliomyelitis, or what is frequently known as infantile paralysis, or, what seems to me the better term, cornual myelitis. This case is fairly typical of

this disease. Its mode of onset and progress have been such as are usually found in this disease in the adult. In the infant it, as a rule, comes on more rapidly, and is less likely to be attended with rheumatoid pains. The character of the pains in the patient before us, with the tenderness over the muscles and nerves, requires careful consideration. In older children and in adults joint pain with muscular soreness is not uncommon in this disease. The reason of this, without supposing a light form of neuritis, has never been satisfactorily explained. Now, in this case we find in certain regions, especially over the upper portion of the great pectoral muscles, around the shoulders, over the arms, over the calf of the legs, and over the gluteal muscles, especially on the right side, that there is considerable tenderness on pressure. Pressure over the course of the nerves gives rise to most pain. The intercostal nerves are especially sensitive to pressure. Yet, with all this sensory condition of the nerves, temperature, tactile, and pain senses are perfectly normal. How, then, are we to explain the presence of these marked subjective sensory disturbances? I know of no way to explain them except on the theory of the presence of a light form of perineuritis. If this be the case, we have, then, poliomyelitis and multiple neuritis associated. Let us study some of the more prominent symptoms of poliomyelitis. Its mode of onset varies greatly in different persons. In some, while the child is running across the floor, its legs suddenly give way, it falls, and is unable to rise again. Or a child in apparently good health falls to sleep, and on awaking an hour later is partially paralyzed in one or more of its limbs. In the vast majority of cases, however, it comes on more gradually. The child goes to bed apparently well at night, and wakes the next morning paralyzed in one or more of its extremities. Not infrequently in the child the disease

is ushered in and attended for several days or a week or more by considerable fever. In the adult the disease is usually preceded by languidness, indisposition to exercise, loss of appetite, and pain in some of the joints. In some there is fever, and in others none. Paralysis comes on at the end of a day or two, or at the end of the first or second week, affecting but few muscles at first, but gradually extending until a greater or less number are involved. This is not always the case, however. In a lady whom I recently saw in consultation the paralysis came on in a few hours, and was complete in all four of the extremities at about the same time. The fever may vary, when there is a febrile stage, from 100° to 102° , occasionally going up to 103° or even 104° . I have seen cases where the febrile stage lasted two or three weeks, and in one instance it was mistaken by the attending physician for typhoid fever. This can always be avoided, if paralysis is early looked for, as it occurs comparatively early even in the prolonged febrile cases. The muscles of the distal portions of the limbs, as a rule, are more affected than those of the proximal. There are exceptions to this rule, as is seen in the patient before you, where the muscles of the forearm are unaffected, and those of the upper arm are almost completely paralyzed. In the legs the anterior tibial and peroneus muscles are usually the muscles most affected below the knees. In the arms the extensors are more affected than the flexors, and the deltoids rarely escape. It is rare, except in cases of universal and complete paralysis, to have a symmetrical distribution of the paralysis, but one group of muscles on one side of the body is completely paralyzed and a different group on the other side. Wasting usually begins in the muscles by the fifth or sixth day, and not infrequently faradaic changes may be noticed at the same time. There is a decrease in the response to the faradaic

current. In a few days or weeks all the muscles may cease to respond to this current, whilst increased irritability to the galvanic may continue for a number of months.

In the prognosis of this disease much will depend upon the muscular wasting and the response of the muscles to the faradaic current. The immediate prognosis, however, is more modified by the portion of the cord affected than the extent of the paralysis. The danger when the cervical region is involved is from interference with the heart's action, or from paralysis of the muscles of respiration and deglutition. In a case that I saw recently in which the cervical region was affected, the child died suddenly while drinking a glass of milk. If the paralysis ceases to progress for twenty-four or forty-eight hours, as a rule, it will not extend further. With regard to the ultimate prognosis: if the muscles fail to respond to the faradaic current by the end of the second week, wasting usually will be great, and complete recovery exceedingly doubtful; but if loss of faradaic irritability has not appeared by the end of the second week, but subsequently does appear, wasting will be less, and recovery more nearly complete. In those cases where the muscles never fail to respond to the faradaic current recovery, as a rule, will be complete. So that we can say in proportion to the rapidity of the wasting and the loss of the faradaic irritability will the case be unfavorable as regards complete recovery. If, at the end of a year, the muscles fail to respond to the faradaic current, but little or no hope of recovery need be entertained. The prognosis in the present case is good. The faradaic irritability, although lessened, is not completely lost in any of the muscles paralyzed, although it is now the end of the fifth week since the beginning of the disease.

Treatment.—The patient during the acute stage should be kept at rest in bed and lying on the side, or in the

semi-prone position, if too much discomfort is not caused by this position. If the case is seen early, dry or wet cups to the spine near the seat of inflammation may do good, the former in the weak, the latter in the robust patients. In this stage leeches would do good if timely applied. Mustard plasters over the spine are indicated in this stage. Ice poultices, warm salt bags, or the alternate application of heat and cold to the spine, may be employed with advantage. Free diaphoresis should be kept up at first, either by warm vapor baths, occasional hot packs, or by copious drinks, in which some convenient diaphoretic, such as the spirit of Mindererus, may be added. The bowels should be kept soluble, and careful attention should be paid to the digestive organs. The diet should be nutritious without being stimulating, and it should be easy of digestion.

After the acute stage is over, the condition in which we find our patient to-day, arsenic and strychnine are probably the most valuable agents, to which iron or quinine may be added as occasion may seem to indicate. Cod-liver oil is in excellent tonic in these cases, especially in children, to whom it may often be given by the skin if it is well rubbed in. Electricity, as a rule, should not be employed before the end of the third or fourth week. When a moderate faradaic current causes contraction of the muscles it meets every indication, but usually the slowly interrupted galvanic is necessary to insure contraction of the most affected muscles. Massage does good in keeping up the nutrition of both muscles and skin. The paralyzed parts should be kept well protected from changes of temperature, as they are usually cool and the nutrition in them less active than in the unaffected limbs. The orthopody of poliomyelitis is of great importance, but it would be out of place to discuss it at this time.



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